

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, DC 20554**

In the Matter of	)	
	)	
Mitigation of Orbital Debris in the New Space	)	IB Docket No. 18-313
Age	)	
	)	

**COMMENTS**

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## TABLE OF CONTENTS

	<u>Page</u>
Summary and Introduction .....	1
Discussion.....	6
I. The FCC should not impose a performance bond requirement for successful disposal of GSO satellites in the graveyard orbit. ....	6
II. If the FCC, nonetheless, imposes a financial penalty on U.S. GSO operators that fail to retire satellites in the graveyard orbit, it should revise the penalty formula. ....	10
A. The FCC should adopt a penalty amount that does not increase based on the age of the satellite.....	10
B. The FCC should impose the penalty as a forfeiture assessment, rather than as a performance bond obligation. ....	12
1. A performance bond would unfairly impose costly surety fees on operators.....	12
2. A performance bond would inefficiently and unnecessarily tie up capital.....	13
3. There would be little risk of non-payment of a forfeiture assessment. ....	14
C. The FCC should allow for partial satisfaction of the disposal requirement. ....	15
III. The FCC should not impose an indemnification requirement on commercial U.S. GSO operators. ....	16
A. There is no valid justification for adopting an indemnification requirement. ....	16
B. An indemnification requirement would impose unnecessary costs on U.S. GSO operators.	17
C. The FCC lacks statutory authority to impose an indemnification requirement. ....	18
D. Congress, not the FCC, is the appropriate entity to balance the trade-offs between protecting the U.S. government from liability and encouraging development of the U.S. commercial space industry. ....	24
E. If the FCC, nonetheless, adopts an indemnification requirement for commercial U.S. GSO operators, it should limit the maximum liability to \$75M.....	26

IV. The FCC should clarify the quantitative metric to assess compliance with the requirement to minimize the probability of accidental explosion.....	28
V. Conclusion .....	29

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**COMMENTS OF HOGAN LOVELLS US LLP**

**SUMMARY AND INTRODUCTION**

Hogan Lovells US LLP (“Hogan Lovells”) on behalf of one of its clients that is a geosynchronous orbit (“GSO”) satellite operator (the “Satellite Client”) submits these comments in response to the further notice of proposed rulemaking (“*FNPRM*”) in the above-captioned proceeding.<sup>1</sup> Approximately two years ago, the Federal Communications Commission (“FCC” or “Commission”) initiated this proceeding to update its orbital debris mitigation rules in light of market developments in the space industry, namely the growth of operators proposing to deploy constellations in low-Earth orbit comprised of thousands, if not tens of thousands, of satellites, and the emergence of other innovative new space offerings. In May 2020, the FCC concluded its proceeding, modernizing dozens of its rules.

The FCC deferred action on several of its proposals in the face of wide opposition by industry, as well as concerns expressed by FCC Commissioners.<sup>2</sup> The FCC now seeks

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<sup>1</sup> See *Mitigation of Orbital Debris in the New Space Age*, Report and Order and Further Notice of Proposed Rulemaking, 35 FCC Rcd. 4156 (2020) (“*R&O*” or “*FNPRM*” as appropriate); see also 85 Fed. Reg. 52455 (Aug. 25, 2020).

<sup>2</sup> See, e.g., *R&O*, ¶¶ 135-37; *FNPRM* at 4288 (statement of Commissioner Michael O’Rielly) (“[T]here are other agencies with far more expertise in certain aspects of space travel and orbital debris than the FCC. . . . I am also not sure the FCC has the total expertise needed to decide many of these matters on its own.”); *id.* at 4290 (statement of Commissioner Brendan Carr) (“It’s no secret that I have been skeptical of the FCC’s jurisdiction and expertise when it comes to

comments on those remaining proposals, including specifically the adoption of a post-mission satellite disposal performance bond and an indemnification requirement. The Satellite Client opposes both those proposals.

There is no evidence in the record that a post-mission satellite disposal performance bond for commercial U.S. GSO operators is necessary. As discussed below, the data shows that since 1990 only 9 of the 68 commercial U.S. GSO satellites that have been retired were not disposed successfully in the graveyard orbit. These 9 satellites failed as a result of unanticipated anomalies that occurred when the satellites had been operating for 4 to 12 years. Given this low rate of in-orbit failures and the inverse correlation between those failures and satellite age, there is simply no basis to conclude that commercial U.S. GSO operators are not fully considering orbital debris mitigation measures or require additional incentives to mitigate risk. Indeed, U.S. GSO operators are already properly incentivized to make appropriate decisions to protect the GSO orbital environment and their respective space assets, as a result of the long-lived nature of GSO satellites, their relatively high replacement costs, the FCC's renewal expectancy policy and the associated revenues available from long-term use of an orbital location, and the fault-based regime for on-orbit operations.

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orbital debris. . . . It is literally rocket science we're wading into."); *id.* at 4292 (statement of Commissioner Geoffrey Starks) ("I strongly believe that we should pay close attention to NASA's expertise when it comes to setting specific standards in space policy."); Letter from Jessica Lyons, AT&T Services, Inc. et al., to Marlene Dortch, Secretary, FCC, GN Docket No. 18-313, at 1 (filed Apr. 2, 2020) (suggesting the FCC should decline to adopt overly burdensome and unnecessary proposals, including indemnification requirements); Letter from Nickolas Spina, President, Commercial Smallsat Spectrum Management Association, to Marlene Dortch, Secretary, FCC, GN Docket No. 18-313, at 3 (filed Apr. 16, 2020) (explaining that the proposed indemnification requirements "would have a negative impact on the viability of the U.S space industry generally").

If, nonetheless, the FCC were to assess a financial penalty on U.S. GSO operators that fail to successfully retire a satellite in the graveyard orbit, the FCC should do so as a forfeiture assessment, rather than as a payment pursuant to a performance bond. While the penalty amount to the FCC would remain the same, a performance bond obligation imposes significant costs on all satellite operators, even those that are responsible actors. Rather than imposing costs across the board, any penalty associated with failure of a GSO operator to retire a satellite in the graveyard orbit should be assessed as a forfeiture, which effectively imposes costs only on those actors that have not complied with the FCC's rules. Importantly, given the low failure rate of GSO satellites and the fact that U.S. GSO operators typically have established businesses, there is little risk to the FCC that such operators would be unable to pay forfeiture amounts.

Based on the ages of the active commercial U.S. satellites, up to three quarters of a billion dollars could be removed from the capital market in perpetuity to serve as collateral for performance bonds under the FCC's proposal (assuming every commercial U.S. GSO operator is required to fully securitize their respective bonds). Similarly, the satellite industry could potentially be obligated to pay tens of millions of dollars in surety fees to foreign and domestic surety companies each year to maintain performance bonds for statistically unlikely events. Such expenses imposed on operators that have not violated any FCC orbital debris mitigation rules would be unjustified and unfair. Moreover, such unnecessary and costly expenses would negatively impact the U.S. satellite industry, deterring investment in space and encouraging operators to consider non-U.S. licensing jurisdictions.

Additionally, the forfeiture amount should not increase based on the age of the satellite. Data shows that satellites are more prone to anomalies and failures in the early years of operations, not the later years. Accordingly, there is no data to support the conjecture in the

*FNPRM* that operationally older GSO satellites are more likely to fail in orbit or that commercial U.S. GSO operators should be incentivized to retire older satellites sooner. Indeed, the historical data shows precisely the opposite. Accordingly, a forfeiture that increases with satellite age would increase, rather than decrease, orbital debris by unnecessarily encouraging operators to place in space more objects, sooner, courting a higher risk of failure. In addition, a forfeiture that increases with satellite age disincentivizes use of the emerging satellite servicing industry, which has the potential to reduce in-orbit population through servicing, maintaining, and upgrading on-orbit assets.

Further, any forfeiture amount should be prorated to reflect operator successes in partially disposing of GSO satellites. The farther a satellite is from the GSO arc when retired, the greater the benefit to the orbital debris environment. Operators should be credited accordingly, even if the satellite does not fully reach the graveyard orbit.

The FCC also should not impose an indemnification requirement. As discussed above, there is simply no basis to conclude that commercial U.S. GSO operators are not fully considering orbital debris mitigation matters or require additional incentives to responsibly mitigate risk.

More fundamentally, the FCC lacks authority to impose such a requirement. It is axiomatic that administrative agencies may act only pursuant to authority delegated to them by Congress, and agencies must identify that authority in establishing any rules. The FCC has not done so here.

Instead, it has suggested only that an applicant's plan to mitigate orbital debris risk is a relevant public interest factor in evaluating whether to grant an application. However, the FCC's general licensing authority is not a plenary grant of authority; licensing conditions based on the

public interest standard must be related to the effective use of radiofrequency transmissions.

Here, there is no connection between the effective use of satellite radiofrequency transmissions and either ensuring safe operations in space or assessing the proper balance of liability between the U.S. government and commercial U.S. space operators. Accordingly, the FCC's general licensing authority does not give it the authority to adopt an indemnification requirement.

Moreover, the fundamental public interest concerns that the FCC identifies as a basis for adopting an indemnification requirement—to wit, the potential costs to U.S. taxpayers and the proper balance of liability assumed by the U.S. government and the commercial U.S. space industry—are issues that are more appropriately addressed by Congress, not the FCC. The Satellite Client is not aware that the U.S. government, in the fifty years since assuming the liability obligations in the Outer Space Treaty, has proposed an indemnification requirement for on-orbit satellite operations or even suggested that there is a need to do so. In fact, where Congress saw a need to balance the liability between the U.S. government and private U.S. actors, as it did in 1988 with respect to the U.S. launch industry, Congress specifically adopted legislation. It has not done so here.

Nothing in the record even suggests that Congress or the Administration supports the FCC's proposed indemnification requirement. In fact, recently proposed Congressional legislation and Space Policy Directives all suggest otherwise, *i.e.*, that the U.S. government supports the development of the U.S. commercial space industry and advancing U.S. leadership in space. The FCC's analysis of the public interest also fails to consider the *benefits* to U.S. taxpayers that commercial U.S. GSO satellite operators create in terms of the provision of service and generation of jobs and taxes. For all of these reasons, the FCC should not adopt a post-mission satellite disposal performance bond or an indemnification requirement.



## DISCUSSION

### I. THE FCC SHOULD NOT IMPOSE A PERFORMANCE BOND REQUIREMENT FOR SUCCESSFUL DISPOSAL OF GSO SATELLITES IN THE GRAVEYARD ORBIT.

The intent of any attempt to modify behavior through financial penalties or rewards is to align incentives with the desired behavior. The desired behavior here is that commercial operators fully consider orbital debris mitigation matters in their design and operation of satellite systems. But there is no evidence to support the FCC's conjecture that commercial U.S. GSO operators do not fully consider orbital debris mitigation matters or similarly that a bond (or indemnification) requirement is necessary to incentivize U.S. GSO operators to mitigate risk.<sup>3</sup> Accordingly, there is no demonstrated public interest benefit in adoption of the performance bond, and the FCC should reject the proposal.

The Satellite Client has reviewed orbital launch and satellite retirement data available commercially from Seradata via its SpaceTrak database.<sup>4</sup> The data shows that since 1990 approximately 13.2% of the commercial U.S. GSO satellites retired (9 of 68) were not successfully disposed in the graveyard orbit and that 86.8% of commercial U.S. GSO satellites were successfully retired. This figure supports the position that U.S. GSO operators are acting responsibly and that the orbital debris regime for GSO satellites is working properly.

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<sup>3</sup> See *FNPRM*, ¶ 194.

<sup>4</sup> *Seradata Homepage*, <https://www.seradata.com/> (last visited Oct. 8, 2020). As described on its website, Seradata is one of the industry's leading launch, satellite database and analysis system. Seradata analyses provide comprehensive, consistent, independent and authoritative information covering every (orbital) launch and satellite since Sputnik in 1957. Originally created in 1997, the Seradata SpaceTrak software powers the marketing and risk decisions of key launch providers, manufacturers, insurance companies, governments and satellite operators worldwide. See also *Gunter's Space Page Homepage*, <https://space.skyrocket.de/index.html> (last visited Oct. 7, 2020).

According to the SpaceTrak database, since 1990, 170 commercial U.S. GSO satellites have been launched.<sup>5</sup> Of those 170 satellites, 94 are active and 76 are inactive. Of the inactive satellites:

- 8 failed for launch-related reasons
- 22 were retired as a result of an unexpected satellite anomaly or failure
  - 8 of these satellites did not reach graveyard orbit
  - 14 of these satellites successfully reached graveyard orbit
- 46 were retired for other reasons, such as obsolescence, replacement, or depletion of propellant
  - 1 of these satellites did not reach graveyard orbit
  - 45 of these satellites successfully reached graveyard orbit

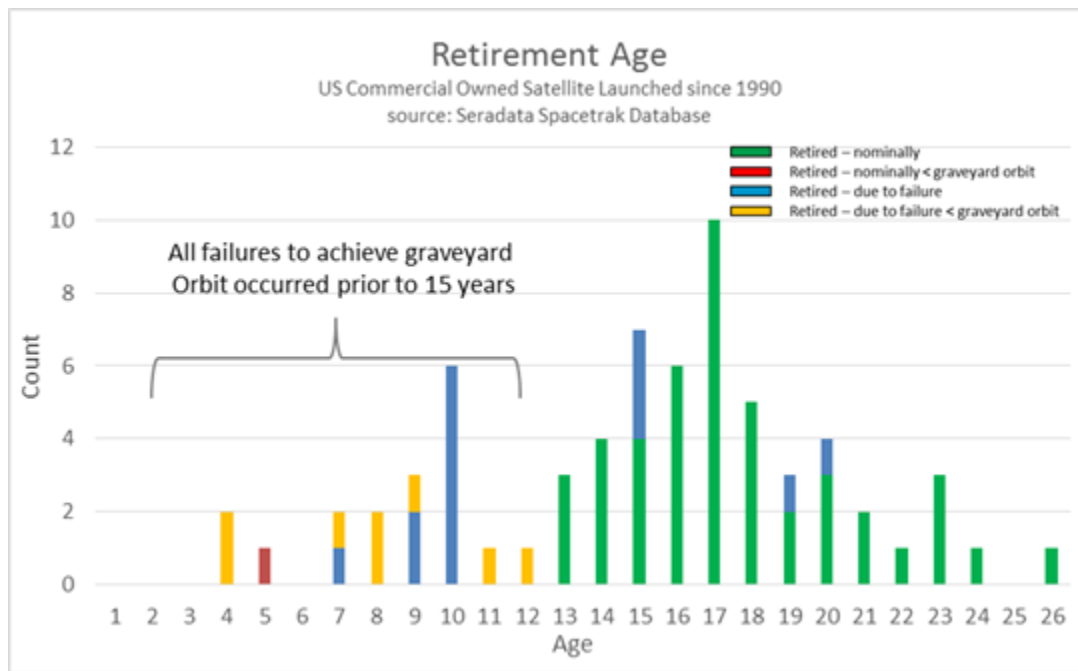
The table below shows the 68 inactive satellites that were successfully launched and subsequently retired, their respective ages at retirement, and information regarding whether the satellites were successfully retired in the graveyard orbit.<sup>6</sup>

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<sup>5</sup> “Commercial U.S. GSO satellites” are the satellites identified in the Seradata database as controlled by U.S. entities. This subset of data excludes U.S. government satellites and foreign controlled systems serving the United States, but provides a representative and convenient dataset.

<sup>6</sup> Not included in the table are the 8 satellites that failed at launch or shortly thereafter.

Table 1 – Satellite Age at Retirement



The table below identifies the 9 satellites that were successfully launched but not retired in the graveyard orbit as a result of anomalies or failures.<sup>7</sup> The table also provides the number of years the satellite was in operation, the year of retirement, and a brief explanation of the anomaly or failure.

<sup>7</sup> Although public reports identify PanAmSat 22 and PanAmSat 6 as having been properly de-orbited in the graveyard orbit, SpaceTrak indicates that the satellite perigees are below the GSO arc. *See supra* note 4. Accordingly, as a conservative measure, the Satellite Client is treating these satellites as not having been properly disposed of in the graveyard orbit.

Table 2 – Inactive GSO Satellites that Did Not Achieve Graveyard Orbit

Satellite name	Age (yrs)	Year of	
		Retirement	Anomaly
TELSTAR 401	3.1	1997	Electrical short, loss of control
HGS-4 (GALAXY 4)	7.0	2000	Redundant processor failure;
PANAMSAT 22 (ASIASAT 3)	5	2000	eccentric graveyard orbit
TELSTAR 402R	8.0	2003	Electrical short, loss of control
PANAMSAT 6	6.7	2004	Solar array degradation, eccentric graveyard orbit
INTELSAT 804	7.1	2005	Electrical short, loss of control
GALAXY 3R	10.1	2006	Redundant processor failure;
ECHOSTAR 2	11.8	2008	power system failure; loss of control
INTELSAT 29e (INTELSAT EPIC 1)	3.1	2019	failure & loss of control

The handful of instances of in-orbit failure of GSO satellites, resulting in a failure of an operator to reach graveyard orbit, reveals that such events are unexpected, beyond the control of the operator, and uncorrelated with satellite age (which is the only parameter in the proposed bond formula). The above data demonstrate that commercial U.S. GSO satellite operators are already incentivized to operate and dispose of spacecraft responsibly and, in fact, have been doing so since at least 1990.<sup>8</sup> Collecting millions of dollars on a performance bond for unpredictable events, uncorrelated with age or operator behavior, would serve only to penalize U.S. GSO operators and would not serve any public interest goal.

The long-lived nature of the satellites and their relatively high replacement costs ensure that operators take appropriate care in protecting their space assets. Additionally, the FCC's satellite license renewal policy and the associated revenues available from long-term use of an orbital location<sup>9</sup> incentivize each operator to protect its assigned orbital slot beyond the lifetime

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<sup>8</sup> The 13.2% failure rate (9 of 68 satellites) and associated 86.8% reliability rate is statistically comparable to the 10% failure rate and 90% reliability rate envisioned under the ODMSP guidelines. U.S. Government Orbital Debris Mitigation Standard Practices (Nov. 2019), <https://go.nasa.gov/3icAHXD> (“ODMSP”).

<sup>9</sup> See *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd. 10760, ¶¶ 250-51 (2003); see also 47 C.F.R. § 25.158(a)(2) (exempting applications for replacement satellites from the

of any particular operating satellite. International treaty requirements also establish a fault-based regime for on-orbit liability (versus strict liability for re-entry), which naturally incentivizes operators to take appropriate orbital debris mitigation measures.<sup>10</sup> Nothing in the record contradicts these facts. Accordingly, for all the above reasons, there is no justification to support adopting a post-mission satellite disposal performance bond for U.S. GSO operators.

**II. IF THE FCC, NONETHELESS, IMPOSES A FINANCIAL PENALTY ON U.S. GSO OPERATORS THAT FAIL TO RETIRE SATELLITES IN THE GRAVEYARD ORBIT, IT SHOULD REVISE THE PENALTY FORMULA.**

**A. The FCC should adopt a penalty amount that does not increase based on the age of the satellite.**

The proposed GSO performance bond formula is based on the incorrect assumption that “the longer that a GSO space station operates, generally the more susceptible that space station is to malfunction that could put successful disposal at risk.”<sup>11</sup> As illustrated in Table 1 above, 8 commercial U.S. GSO satellites that were not retired in the graveyard orbit failed at launch or shortly thereafter. Of the other 9 satellites that were not retired in the graveyard orbit, the operational ages of those satellites ranged from 4 to 12 years. All the satellites with operating lives of 13 years or longer were successfully raised to the graveyard orbit for retirement, including those satellites that experienced an anomaly or failure requiring retirement. Thus, contrary to the FCC’s conjecture, the data shows that anomalies resulting in de-orbiting failures of GSO satellites are more likely in the early years of satellite operations, not the later years.

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filing queue otherwise applicable to new satellite applications); 47 C.F.R. § 25.165(a) (exempting replacement satellites from the satellite bond requirement).

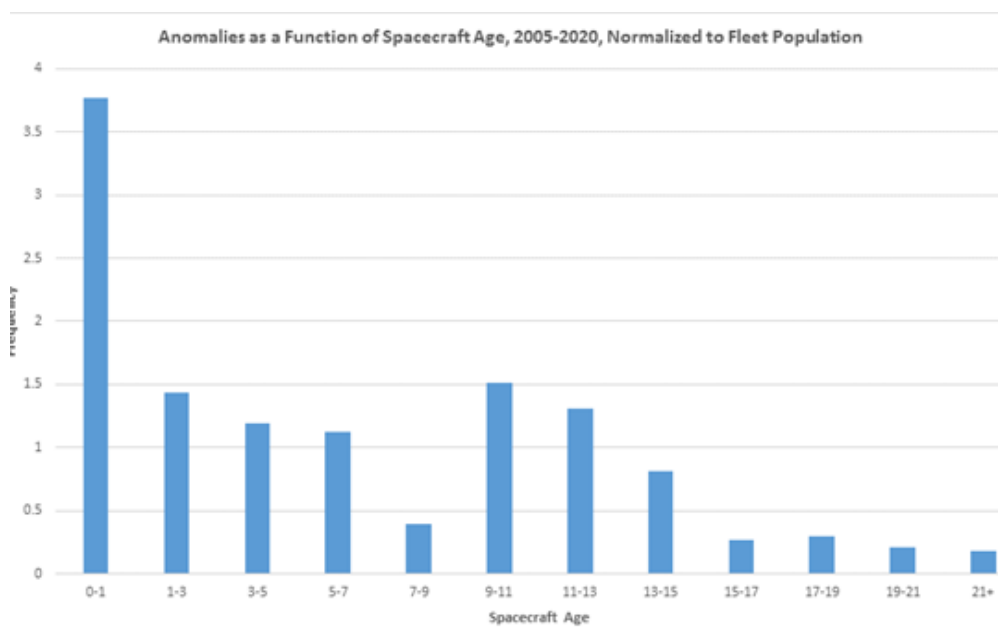
<sup>10</sup> *FNPRM*, ¶ 177; *Mitigation of Orbital Debris in the New Space Age*, Notice of Proposed Rulemaking and Order on Reconsideration, 33 FCC Rcd. 11352, ¶ 80 (2018) (“*NPRM*”).

<sup>11</sup> *See FNPRM*, ¶ 200.

Provided below is another table based on the data in the SpaceTrak database that plots the number of anomalies experienced by commercial U.S. GSO satellites and the age of the satellite normalized to fleet population. This table shows the frequency of anomalies relative to the percentage of the fleet of that age at any given time. A frequency of one would mean spacecraft anomalies are in proportion to the number of operational spacecraft of that age on orbit.

For example, 9.16% of operational spacecraft are between 1 and 3 years old. Therefore, if anomalies were completely age-independent, 9.16% of the anomalies would be expected for spacecraft in this age range. But, in fact, 13.1% of the anomalies were on spacecraft 1-3 years old, meaning that this rate of anomalies is 1.43 greater than what would be expected based solely on the number of spacecraft (which is why the bar for the 1-3 group in the table is at 1.43). Thus, any quantity less than 1 on the table indicates that anomalies are occurring less frequently than would be expected due to age. This data rebuts the general premise that older satellites are more prone to anomalies, further undermining the FCC’s basis for adoption of a penalty formula based on the age of the satellite.

*Table 3 – Frequency of Anomalies vs. Satellite Age*



Accordingly, the FCC's bond formula inefficiently discourages use of otherwise viable satellites and unnecessarily incentivizes U.S. GSO operators to launch replacement satellites sooner than would be operationally required. The proposed bond formula also discourages operators from using life extension services and more generally hinders the development of the satellite servicing industry that, in fact, has the potential to reduce in-orbit population through servicing, maintaining, and upgrading on-orbit assets. For all the above reasons, if the FCC establishes a penalty for U.S. GSO operators that fail to retire satellites in the graveyard orbit, it should adopt a penalty amount that does not increase with the age of the satellite.

**B. The FCC should impose the penalty as a forfeiture assessment, rather than as a performance bond obligation.**

A performance bond obligation imposes significant costs on all satellite operators, even those that are responsible actors. Rather than imposing costs on all licensees, any penalty associated with failure of a GSO operator to retire a satellite in the graveyard orbit should be assessed as a forfeiture, which imposes costs only on those parties that have not complied with the FCC's rules.

Given the low probability that an operating commercial U.S. GSO satellite will fail to retire in the graveyard orbit and the unlikelihood that a GSO operator could not pay a forfeiture in the event there was a failure, there is no reason to impose unnecessary costs on all U.S. GSO operators where there is demonstrated evidence that operators are complying with FCC orbital debris mitigation objectives.

**1. A performance bond would unfairly impose costly surety fees on operators.**

While there is no difference to the FCC between the payment of a \$5M forfeiture assessment and a \$5M performance bond obligation, there is a substantial cost difference to the satellite operator. To obtain a performance bond, a satellite operator must pay a percentage of

the bond amount to the surety each year, typically 1% to 3%, depending on the credit rating of the company. Thus, for example, for a \$5M bond, this fee could be \$50,000 to \$150,000 per year, and over a 15-year lifetime, this amount would be \$750,000 to \$2.25M. For operators of fleets, these costs would multiply. Indeed, as an industry, operators could be paying tens of millions of dollars each year in surety fees.<sup>12</sup> Such expenses imposed on operators that have not violated any FCC orbital debris mitigation rules would be unjustified and unfair. Moreover, such unnecessary and costly fees would negatively impact the U.S. satellite industry, deterring investment in space and encouraging operators to consider non-U.S. licensing jurisdictions, especially in cases where satellite service to the United States is not a consideration.

**2. A performance bond would inefficiently and unnecessarily tie up capital.**

Unlike insurers, a surety assumes no financial risk in assuming responsibility for the payment of a bond obligation. Accordingly, non-investment grade companies with performance bond obligations are typically required to post collateral, often cash or other financially liquid assets, to secure payment of the full amount of the bond obligation. Thus, as a practical matter, a performance bond would create a barrier to entry, disproportionately impacting new operators and potentially impeding innovation and growth in the U.S. space industry.

In contrast, a penalty imposed as a forfeiture assessment, rather than a performance bond obligation, would allow operators to more efficiently allocate capital for business operations and not tie up substantial funds for lengthy periods of time. The table below illustrates the financial burden on the industry if the FCC were to adopt its proposed performance bond. Based on the

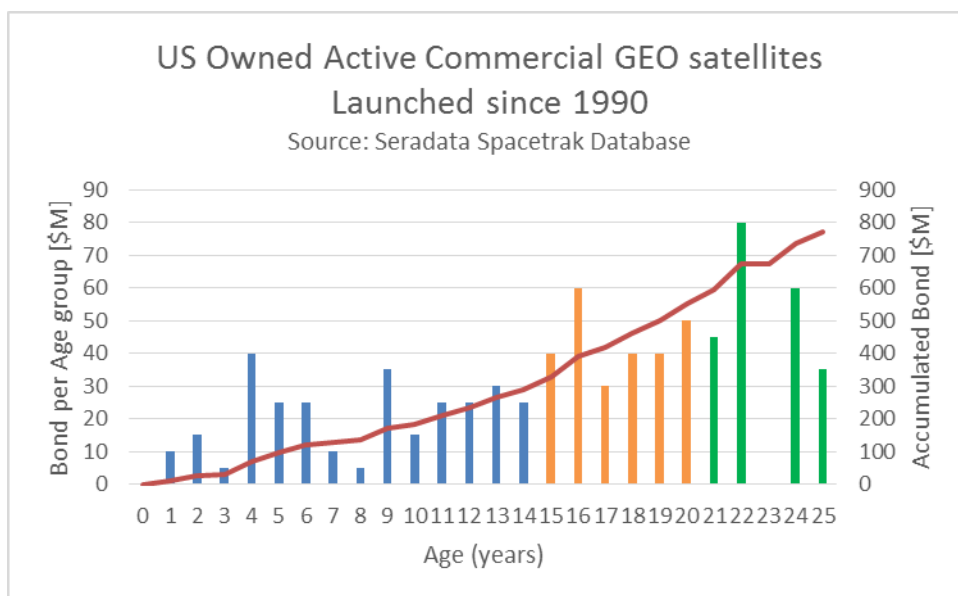
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<sup>12</sup> As discussed above, there are currently 94 active commercial U.S. GSO operators according to the SpaceTrak database. *See supra* note 4. Assuming surety fees that range from 1% to 3% per year, the industry costs would range from \$4.8M to \$14.4M.



current operational ages of the 94 active commercial U.S. GSO satellites identified in the SpaceTrak database, a total of \$770M in financial assets could be tied up as collateral for the proposed performance bonds. Because satellites are typically replaced after they are de-orbited, this amount would not decrease over time, and as a result, three quarters of a billion dollars could effectively be removed from the capital market in perpetuity. The imposition of this potential collateral requirement on operators that have not violated any FCC orbital debris mitigation rules is unjustified and unfair and would effectively function as a substantial new tax on U.S. GSO operators. Such a result would be a gross waste of capital resources and negatively impact development of the U.S. space industry, as well as capital markets more generally.

*Table 4 – Operational Ages of Active Satellites*



### **3. There would be little risk of non-payment of a forfeiture assessment.**

A performance bond is typical in situations where there are concerns regarding an entity's ability to pay a penalty associated with a failure to perform. Such a concern is not applicable for commercial U.S. GSO operators. As a practical matter, the vast majority of GSO

satellites serving the United States are owned and operated by only a handful of companies.<sup>13</sup>

Each of these operators are going concerns and would be readily capable of paying a forfeiture in the amount of \$5M, in the unlikely event of a failure to successfully retire a GSO satellite.

Moreover, as discussed above, because the FCC's renewal policy provides operators a satellite replacement expectancy,<sup>14</sup> operators are already incentivized to ensure compliance with the FCC's rules, including the payment of forfeitures associated with the failure to de-orbit a satellite.

### **C. The FCC should allow for partial satisfaction of the disposal requirement.**

The graveyard orbit is an arbitrarily defined orbit 300 km above the GSO arc. Disposal in or near that graveyard mitigates potential orbital debris harms to U.S. GSO operators because it reduces the potential that non-operating satellites will drift back into the GSO arc.

Occasionally, satellites are disposed of away from the GSO arc but not completely in the graveyard orbit. Whether or not a spacecraft actually crosses the arbitrary graveyard orbit line does not determine the risk; the risk is correlated with how far the spacecraft is from the GSO arc. For this reason, the FCC should allow for partial satisfaction of the disposal requirement. A simple formula based on a linear function of the proximity of the retired satellite to the graveyard orbit is provided below:

$$FA = \$5,000,000 * ((300-DO)/300),$$

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<sup>13</sup> See, e.g., *Expanding Flexible Use of the 3.7 to 4.2 GHz Band*, Report and Order and Order of Proposed Modification, 35 FCC Rcd. 2343, ¶ 200 (2020) (“*C-band R&O*”) (“[O]nly five incumbent space station operators [deliver C-band service to the contiguous United States]: Eutelsat, Intelsat, SES, Star One, and Telesat.”).

<sup>14</sup> See *supra* note 9 (discussing FCC satellite renewal expectancy policy).

where FA is the forfeiture amount; and DO is the distance in kilometers above the GSO arc in which the satellite was retired (with a minimum of 0 km and a maximum of 300 km, which would represent retiring the satellite in the graveyard orbit).

### **III. THE FCC SHOULD NOT IMPOSE AN INDEMNIFICATION REQUIREMENT ON COMMERCIAL U.S. GSO OPERATORS.**

In the *FNPRM*, the FCC seeks comment on the potential adoption of an indemnification requirement as part of a broader discussion regarding liability and incentivizing safe operations in space.<sup>15</sup> As part of the inquiry, the FCC asks whether an indemnification requirement is necessary to ensure that “the more technical aspects of orbital debris mitigation are fully considered by licensees”<sup>16</sup> and whether a requirement is necessary to ensure that “U.S. taxpayers are not ultimately responsible for defraying costs resulting from the activities of non-government entities.”<sup>17</sup> For the reasons discussed below, the answer to both questions is “no,” and the FCC should not adopt an indemnification requirement for U.S. GSO operators.

#### **A. There is no valid justification for adopting an indemnification requirement.**

The *FNPRM* posits that U.S. GSO operators may not fully consider orbital debris mitigation matters in their planning and decision-making and that an indemnification requirement could strengthen incentives for operators to mitigate risk.<sup>18</sup> As discussed above in Parts I and II.A, neither conjecture is supportable and, in fact, the evidence plainly contradicts the assertions.

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<sup>15</sup> See *FNPRM*, ¶ 176.

<sup>16</sup> *Id.*, ¶ 180.

<sup>17</sup> *Id.*

<sup>18</sup> See *id.*

Further, as others have demonstrated, the United States could recover from a private space actor under various legal theories, including civil action under a claim of contribution, claim of equitable tort indemnification, or claim of equitable apportionment.<sup>19</sup> For these reasons, there is no valid justification for adopting an indemnification requirement.

**B. An indemnification requirement would impose unnecessary costs on U.S. GSO operators.**

As a commercial reality, any indemnification requirement could require commercial U.S. GSO operators to incur insurance costs to address the potential liability.<sup>20</sup> Based on discussions with insurers, the Satellite Client estimates that such costs would be based on the maximum liability exposure. Thus, for potential liability of \$75M, the Satellite Client would expect a cost of ~\$25,000 or more per year. For a projected 15-year life of a GSO satellite, the total costs would be ~\$375,000. If the maximum potential liability were \$500M, the Satellite Client would expect a cost of \$100,000 or more per year for a satellite or \$1.5M for a 15-year life of a satellite.

Moreover, the FCC has not suggested when a GSO satellite operator's liability would terminate. Without a specific term limit, the insurance costs could be unpredictable and prohibitive, especially if the insurance were required in perpetuity.

Because commercial U.S. GSO operators are already properly incentivized and responsibly mitigate risk, as discussed above, an indemnification requirement would not materially alter the behavior of U.S. GSO operators and would only impose unnecessary costs on

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<sup>19</sup> See Comments of the Boeing Company, IB Docket No. 18-313, at 37-39 (filed Apr. 5, 2019); Reply Comments of the Boeing Company, IB Docket No. 18-313, at 43 (filed May 6, 2019); Letter from Tom Stroup, President, Satellite Industry Association, to Marlene Dortch, Secretary, FCC, IB Docket No. 18-313, Attachment at 2 (filed Apr. 15, 2020).

<sup>20</sup> Such potential liability would include an increase in litigation exposure for U.S. licensees both in terms of the direct assumption of liability and the potential that other parties could claim a right to sue the indemnifying party based on the indemnification requirement.

operators.<sup>21</sup> Such costs would impede U.S. satellite industry growth and technological development and potentially steer satellite investment abroad.<sup>22</sup> That result would be directly contrary to U.S. space policy and the public interest.<sup>23</sup>

### **C. The FCC lacks statutory authority to impose an indemnification requirement.**

The FCC asks whether it has authority to impose an indemnification requirement on U.S. GSO operators.<sup>24</sup> It does not.

“It is axiomatic that an administrative agency’s power to promulgate legislative regulations is limited to the authority delegated by Congress.”<sup>25</sup> Indeed, “[t]he FCC, like other federal agencies, ‘literally has no power to act . . . unless and until Congress confers powers upon it.’”<sup>26</sup> And there are only two sources for the FCC’s regulatory jurisdiction: “The FCC

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<sup>21</sup> See *supra* Part I.

<sup>22</sup> A number of countries have active initiatives to attract investment and businesses in the space industry. See, e.g., Caleb Henry, *Startups in U.K., Switzerland, led Europe in space investment last year*, SPACENEWS (July 22, 2020), <https://bit.ly/3iD4WY7> (describing recent programs designed to attract space startups); Caleb Henry, *British government and Bharti Global buy OneWeb, plan \$1 billion investment to revive company*, SPACENEWS (July 3, 2020), <https://bit.ly/30C6afR> (discussing the British government’s \$500 million investment in OneWeb); Jeff Foust, *Luxembourg establishes space agency and new fund*, SPACENEWS (Sept. 13, 2018), <https://bit.ly/30fdj5P> (establishing a \$116 million Luxembourg Space Fund to support private sector space innovation); Jeff Foust, *New fund to boost Japanese space startups*, SPACENEWS (Mar. 21, 2018), <https://bit.ly/3cACd4K> (establishing a \$940 million fund to be offered to companies in the space sector).

<sup>23</sup> See *supra* Part III.B and *infra* note 58.

<sup>24</sup> *FNPRM*, ¶ 180.

<sup>25</sup> *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988).

<sup>26</sup> *Am. Library Ass’n v. FCC*, 406 F.3d 689, 698 (D.C. Cir. 2005) (quoting *La. Pub. Serv. Comm’n v. FCC*, 476 U.S. 355, 374 (1986)).

may act either pursuant to express statutory authority to promulgate regulations . . . or pursuant to ancillary jurisdiction.”<sup>27</sup> Here, the FCC has jurisdiction under neither source.

The FCC is obligated to identify the legal authority for its rulemaking,<sup>28</sup> but it has identified no express statutory authority to promulgate its proposed indemnification rule.<sup>29</sup> Instead, the FCC refers back to its *2004 Orbital Debris Order*, which mentions three provisions of Title III of the Act—47 U.S.C. §§ 301, 303(g), 307(a).<sup>30</sup> But Title III does not grant the FCC plenary authority,<sup>31</sup> and none of those provisions expressly grants the FCC authority to promulgate regulations regarding indemnification or requirements for satellite operators. Sections 303(g) and 307(a) are broad policy statements, which do not convey any express delegation of authority.<sup>32</sup> “Policy statements are just that—statements of policy. They are not

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<sup>27</sup> *Id.* at 692 (internal citation omitted); *see also Mozilla Corp. v. FCC*, 940 F.3d 1, 75 (D.C. Cir. 2019) (“The Commission’s regulatory jurisdiction falls into two categories. . . . For the [rule] to stand, then, the Commission must have had express or ancillary authority to issue it.”).

<sup>28</sup> *See* 5 U.S.C. § 553(b)(2) (requiring notices of proposed rulemaking to include “reference to the legal authority under which the rule is proposed”); H.R. Rep. No. 1980, 79th Cong., 2d Sess. 24 (1946), reprinted in *Administrative Procedure Act: Legislative History*, S.Doc. No. 248, 79th Cong., 2d Sess. 185, at 258 (“The required specification of legal authority must be done with particularity. Statements of issues in the general statutory language of legislative delegations of authority to the agency would not be a compliance with the section.”); *Glob. Van Lines, Inc. v. ICC*, 714 F.2d 1290, 1298 (5th Cir. 1983) (“[Section 553 of the Administrative Procedure Act] at the very least requires that the legal grounds upon which the agency thought it was proceeding appear somewhere in the administrative record.”).

<sup>29</sup> *See FNPRM*, ¶¶ 15-19.

<sup>30</sup> *Id.*, ¶ 15 (citing *Mitigation of Orbital Debris*, Second Report and Order, 19 FCC Rcd. 11575, ¶ 14 (2004)).

<sup>31</sup> *See Nat’l Broad. Co. v. United States*, 319 U.S. 190, 216 (1943).

<sup>32</sup> *See, e.g., United States v. Midwest Video Corp.*, 406 U.S. 649, 669 & n.28 (1972) (noting that section 303(g) articulates policy goals and finding that FCC’s actual regulatory power was found in other provisions of the Act); *see also Nat’l Broad. Co.*, 319 U.S. at 219 (describing 303(g) as articulating a “comprehensive mandate”). Section 307(a) “is given meaning and contour by the other provisions of the statute and the subject matter with which it deals,” *FCC v. Sanders Bros.*

delegations of regulatory authority.”<sup>33</sup> Section 301 only articulates the general purpose of Title III to maintain control over channels of radio transmissions and to provide use of such channels through licenses.<sup>34</sup> But the FCC has not explained the link between controlling radio transmissions and a requirement for operators to indemnify the U.S. government. Indeed, there is none. And these provisions are unlike others that have been found to be explicit grants of authority.<sup>35</sup>

Without express authority, the FCC may regulate only pursuant to its ancillary authority.<sup>36</sup> To fall within the FCC’s ancillary authority, a rule must clear two hurdles: (1) the regulated subject must be covered by the FCC’s general jurisdictional grant under Title I; and (2) the regulations must be reasonably ancillary to the FCC’s effective performance of its statutorily mandated responsibilities.<sup>37</sup> The FCC has made neither showing here. While satellite *communications* may fall within the FCC’s general jurisdiction—“communication by wire or radio”—indemnification requirements do not. Instead of regulating communications themselves,

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*Radio Station*, 309 U.S. 470, 473 (1940), but the FCC has cited nothing tying this provision to authority to regulate indemnity or insurance requirements for satellites.

<sup>33</sup> *Comcast Corp. v. FCC*, 600 F.3d 642, 654 (D.C. Cir. 2010).

<sup>34</sup> 47 U.S.C. § 301.

<sup>35</sup> For example, in *Verizon v. FCC*, the court observed that § 706(a) of the Telecommunications Act of 1996, which directed the FCC to “encourage the deployment of a reasonable and timely basis of advanced telecommunications capability to all Americans,” could “certainly be read as simply setting forth a statement of congressional policy.” 740 F.3d 623, 637 (D.C. Cir. 2014). But because that provision explicitly vested the FCC “with actual authority to utilize such ‘regulating methods’ to meet this stated goal,” the court determined that section 706(a) could reasonably be read as a grant of authority. *Id.* at 637-38. Section 303(g) has parallel policy-signaling language—“the Commission . . . shall . . . encourage the larger and more effective use of radio in the public interest”—but unlike § 706(a), it does not explicitly grant the FCC actual authority to regulate in pursuit of that goal. *See* 47 U.S.C. § 303(g).

<sup>36</sup> *Mozilla Corp.*, 940 F.3d at 75.

<sup>37</sup> *Am. Library Ass’n*, 406 F.3d at 700.

the FCC proposes to regulate a communication device in ways that will not bear on its ability to communicate and even while it is not engaged in communications.

The D.C. Circuit has found that similar regulations fall outside of the FCC's ancillary authority at step one.<sup>38</sup> In *American Library Association*, the D.C. Circuit struck down the FCC's regulation requiring that devices capable of receiving digital television broadcast signals have a built-in broadcast flag to prevent digital television reception equipment from redistributing broadcast content it had received.<sup>39</sup> The court struck down the rule because it "impose[d] regulations on devices that receive communications after those communications have occurred; it does not regulate the communications themselves."<sup>40</sup> Thus, "[b]ecause the demodulator products are not engaged in 'communication by wire or radio' when they are subject to regulation under the [rule], the Commission plainly exceeded the scope of its general jurisdictional grant under Title I."<sup>41</sup> "The FCC has no congressionally delegated authority to regulate receiver apparatus after a transmission is complete."<sup>42</sup>

Nor has the FCC demonstrated that the proposed regulations are reasonably ancillary to the FCC's effective performance of its statutorily mandated responsibilities. First, the FCC has not identified any statutorily mandated responsibilities. As explained above, the FCC cites only general statements of policy, and "policy statements alone cannot provide the basis for the Commission's exercise of ancillary authority."<sup>43</sup> Instead, the FCC must link its exercise of

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<sup>38</sup> See *id.* at 700-05; *id.* at 691, 708.

<sup>39</sup> *Id.* at 691, 708.

<sup>40</sup> *Id.* at 703.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.* at 705.

<sup>43</sup> *Comcast Corp.*, 600 F.3d at 654.



ancillary authority to a statutory delegation of regulatory authority.<sup>44</sup> Indeed, “although policy statements may illuminate that authority, it is Title II, III, or VI to which the authority must ultimately be ancillary.”<sup>45</sup>

The FCC claims to adopt its indemnification requirement pursuant to its Title III authority to license in the public interest. But the D.C. Circuit has explained that “the Commission may not rely on Title III’s public-interest provisions without mooring its action to a distinct grant of authority in that Title.”<sup>46</sup> The public interest “criterion is not to be interpreted as setting up a standard so indefinite as to confer an unlimited power.”<sup>47</sup> Instead, “[t]he FCC must act pursuant to *delegated authority* before any ‘public interest’ inquiry is made under” Title III’s public-interest provisions.<sup>48</sup>

In any event, the FCC has not articulated how the proposed requirements are “reasonably ancillary” to its public interest mandate. First, the FCC maintains that an applicant’s plan to

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<sup>44</sup> *Id.* at 657-58.

<sup>45</sup> *Id.* at 654. That “derives from the ‘axiomatic’ principle that ‘administrative agencies may [act] only pursuant to authority delegated to them by Congress.’” *Id.*

<sup>46</sup> *Cellco P’ship v. FCC*, 700 F.3d 534, 542 (D.C. Cir. 2012) (“*Cellco*”) (citing *Motion Picture Ass’n of Am., Inc. v. FCC*, 309 F.3d 796, 806 (D.C. Cir. 2002) (“*MPAA*”). In *Cellco*, the court upheld the FCC’s authority because the FCC had relied on Section 303(b), which explicitly delegates the FCC authority to “prescribe”—i.e., make a rule on—“the nature of the service to be rendered by each class of licensed stations and each station within any class.” *Id.* None of the provisions that the FCC cites here has such an explicit delegation of authority.

<sup>47</sup> *Nat’l Broad. Co.*, 319 U.S. at 216 (quoting *Nelson Bros. Bond & Mortg. Co.*, 289 U.S. 266, 285 (1933)).

<sup>48</sup> *MPAA*, 309 F.3d at 806. In *MPAA*, the FCC claimed authority under § 303(r), which allows the FCC to regulate in the public interest “as may be necessary to carry out the provisions of [the chapter],” but the court explained that § 303(r) “simply cannot carry the weight of the Commission’s argument.” *Id.* “The FCC cannot act in the ‘public interest’ if the agency does not otherwise have the authority to promulgate the regulations at issue,” because “[a]n action in the public interest is not necessarily taken to ‘carry out the provisions of the Act,’ nor is it necessarily authorized by the Act.” *Id.*

mitigate orbital debris risks is a relevant public interest factor for evaluating an application, and an indemnification requirement would strengthen the incentives of applicants to mitigate orbital debris risk.<sup>49</sup> Second, the FCC argues that the public interest could be served by ensuring that taxpayers are not ultimately responsible for defraying costs resulting from activities of private actors.<sup>50</sup> These justifications, even if true (they are not),<sup>51</sup> do not convey authority for the FCC to adopt the proposed indemnification requirement on satellite operators.<sup>52</sup> Neither ensuring safe operations in space nor assessing the proper balance of liability between the U.S. government and commercial U.S. space operators directly bears on the larger and more effective use of satellite radiofrequency transmissions in the public interest.

Finally, the FCC's reliance on its previously adopted orbital debris mitigation requirements in 2004 does not excuse the FCC from identifying its statutory authority to implement *new requirements*.<sup>53</sup> The FCC's 2004 orbital debris mitigation rules were simply disclosure requirements, not an industry-changing indemnification requirement intended to

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<sup>49</sup> *FNPRM*, ¶ 180.

<sup>50</sup> *Id.*

<sup>51</sup> As to the first justification, operators are already acting responsibly and no additional incentives are necessary. *See supra* Part III.A. As to the second justification, the FCC's analysis of the public interest is fundamentally flawed. It does not fully consider the *benefits* to U.S. taxpayers that commercial U.S. GSO satellite operators create in terms of the provision of service and generation of jobs and taxes and examines only the potential costs.

<sup>52</sup> Moreover, as discussed in Parts I and III.B, the data readily rejects that an indemnification requirement is required to incentivize U.S. GSO operators to act responsibly, and as a policy matter, Congress, not the FCC, is the more appropriate body to determine the proper balance of liability assumed by the U.S. government and the commercial U.S. space industry.

<sup>53</sup> *Cf. Cal. Sea Urchin Comm'n v. Bean*, 828 F.3d 1046 (9th Cir. 2016) (allowing a challenge to U.S. Fish and Wildlife's statutory authority to issue a regulation years later because of subsequent agency action); *CTIA-Wireless Ass'n v. FCC*, 466 F.3d 105 (D.C. Cir. 2006) (allowing a challenge to an FCC rule under the "reopening doctrine" where the FCC considered and reaffirmed its position from a prior rulemaking).

influence technical satellite operations and imposing potentially hundreds of millions of dollars in costs on the satellite industry.<sup>54</sup> Accordingly, the FCC’s proposed justifications cannot support the FCC’s statutory authority to adopt an indemnification requirement.

**D. Congress, not the FCC, is the appropriate entity to balance the trade-offs between protecting the U.S. government from liability and encouraging development of the U.S. commercial space industry.**

While the trade-offs between protecting the U.S. government, and indirectly U.S. taxpayers, from liability and encouraging development of the domestic commercial space industry are certainly important policy considerations relevant to the United States, they are not within the normal purview of spectrum-related matters addressed by the FCC. Careful balancing of these considerations should be left to Congress.

The U.S. government knowingly chose to assume obligations under the Outer Space Treaty more than 50 years ago, and since that time, Congress has acted only once to address the proper allocation of liability between commercial space operators and the U.S. government.<sup>55</sup> In 1988, Congress “replaced very general insurance requirements with a detailed, comprehensive financial responsibility and allocation of risk regime for commercial launch activities, including a more explicit exposition of the United States Government’s risk-related rights and obligations” with the goal of promoting a robust, domestic commercial launch industry.<sup>56</sup> Congress has taken

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<sup>54</sup> See *FNPRM*, ¶ 5 (“The rules require disclosure of an applicant’s debris mitigation plans as part of the technical information submitted to the Commission.”); *2004 Orbital Debris Order*, ¶ 16 (“We adopt the proposal of the *Notice* and amend our rules to require disclosure of orbital debris mitigation plans as part of the technical information submitted pursuant to Section 25.114 of the Commission’s rules.”).

<sup>55</sup> See Laura Montgomery, *FCC Continuing to Push for Satellite Industry to Indemnify U.S. Government Despite Lack of Authority*, GROUND BASED SPACE MATTERS (Sept. 11, 2020), <https://bit.ly/3lhiMkx>.

<sup>56</sup> See Department of Transportation, Financial Responsibility Requirements for Licensed Activities, Notice of Proposed Rulemaking, 61 Fed. Reg. 38992, 38993 (July 25, 1996) (“*DOT*

no other action since that would suggest that U.S. obligations under the Outer Space Treaty would unfairly burden U.S. taxpayers. Indeed, recent Congressional legislative efforts indicate that Congress' focus is on ensuring the growth of the U.S. space industry and promoting U.S. leadership in space because of the benefits such development provides to the United States, including its taxpayers.<sup>57</sup> Nothing in those recent efforts suggests that Congress believes requiring private satellite operators to indemnify the U.S. government is an important goal. The same is true for recent space policy directives of the current administration.<sup>58</sup> Accordingly,

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*NPRM*"); *see also* Commercial Space Launch Act Amendments of 1988, 49 U.S.C. §§ 2601 *et seq.* The objective was to be accomplished by, *inter alia*, instituting an equitable allocation of risk between the U.S. government and the private sector launch industry. As described by the Department of Transportation:

Participants in licensed launch activities are protected from potentially unlimited liability by: (1) requiring the licensee to provide insurance (or otherwise demonstrate financial responsibility) based on maximum probable loss determinations that: (a) protects launch participants, including the United States Government, from third-party liability (in an amount not exceeding the lesser of \$500 million or the maximum available on the world market at reasonable costs) (49 U.S.C. 70112(a)); and (2) providing for payment by the United States Government of successful third-party claims up to \$1.5 billion in excess of the required amount of third-party liability insurance. . . . Taken together, these provisions are intended to achieve a fair allocation among the various parties, including the United States Government, of the risks attendant to their involvement in commercial launch activities.

*DOT NPRM* at 38993. The statute contains separate provisions regarding liability for claims by the U.S. government against a launch services provider.

<sup>57</sup> *See, e.g.*, U.S. Commercial Space Launch Competitiveness Act, P.L. 114-90, 129 Stat 704, § 113(a) (2015) ("It is the sense of Congress that eliminating duplicative requirements and approvals for commercial launch and reentry operations will promote and encourage the development of the commercial space sector."); American Space Commerce Free Enterprise Act, H.R. 2809, 115th Cong. § 2(b)(3) (2018) ("[T]o the maximum extent practicable, the Federal Government shall interpret and fulfill its international obligations to minimize regulations and limitations on the freedom of United States nongovernmental entities to explore and use space.").

<sup>58</sup> Space Policy Directive-2, Streamlining Regulations on Commercial Use of Space, 83 Fed. Reg. 24901 (May 24, 2018), <https://bit.ly/30cRqDS> ("It is therefore important that regulations adopted and enforced by the executive branch promote economic growth . . . and encourage American leadership in space commerce."); Space Policy Directive-3, National Space Traffic

under such circumstances, it would be inappropriate for the FCC to adopt an indemnification requirement, which increases burdens on commercial U.S. satellite operators and impedes U.S. innovation and growth in space.

**E. If the FCC, nonetheless, adopts an indemnification requirement for commercial U.S. GSO operators, it should limit the maximum liability to \$75M.**

The Satellite Client opposes the FCC's proposed indemnification requirement and believes the FCC lacks authority to impose such a requirement.<sup>59</sup> Nonetheless, if the FCC were to adopt such a requirement, it should limit the maximum liability of commercial U.S. GSO operators to \$75M per satellite. That amount is comparable to liability amounts established by other space-faring nations<sup>60</sup> and would discourage U.S. operators from seeking to license satellite

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Management Policy, 83 Fed. Reg. 28969 (June 18, 2018), <https://bit.ly/3i68qBT> (“Fostering continued growth and innovation in the U.S. commercial space sector, which includes S&T, SSA, and STM activities, is in the national interest of the United States. To achieve this goal, the U.S. Government should streamline processes and reduce regulatory burdens that could inhibit commercial sector growth and innovation . . . .”); *Secretary Ross: “A Bright Future for U.S. Leadership of Space Commerce*, U.S. Department of Commerce, <https://bit.ly/30Llzuw> (last visited Oct. 8, 2020) (“The Space Council can utilize a revitalized Office of Space Commerce to further advance American leadership in space.”); *Remarks by Secretary of Commerce Wilbur Ross at A New Space Race: Getting to the Trillion-Dollar Space Economy World Economic Forum, Davos, Switzerland*, Department of Commerce (Jan. 28, 2020), <https://bit.ly/3d2gF15> (“Trump Administration initiatives will encourage economic growth from space activities, and encourage like-minded nations to do the same. . . . Our national and international governance activities need to facilitate the private sector, and not get in its way. While the overall satellite industry experienced an annual growth rate of 3 percent in 2018, that pales when compared to the economic benefits that those satellites have helped create in other industries.”); *Lunar Surface Innovation Initiative*, NASA, <https://go.nasa.gov/3jn10vq> (last visited Oct. 8, 2020) (aiming to send the first woman and the next man to the south pole of the moon by 2024 and establish sustainable exploration by 2028 by collaborating with commercial and international partners to develop key technological capabilities, which could be stymied by overregulation).

<sup>59</sup> See *infra* Part III.C.

<sup>60</sup> See, e.g., Space (Launches and Returns) (Insurance) Rules 2019, Australia Ministry for Industry, Science and Technology, at Part 2(6) (Aug. 26, 2019), <https://bit.ly/343T6kh> (capping insurance requirement at \$AUS 100 million or ~\$70 million USD); Act on Space Activities, Ministry of Economic Affairs and Employment, Finland, at Sec. 7 (2018),

systems abroad. Such an amount is also within the typical range of amounts for third-party liability insurance for U.S. GSO operators.

Additionally, if the FCC adopts an indemnification requirement, it should establish an effective date of three years from its adoption. A three-year transition period provides a reasonable amount of time for operators to complete and launch systems currently in development under existing business plans. A change to the underlying economics after years of business planning and the introduction of new, unanticipated costs could result in those missions failing to move forward. Indeed, in analogous situations, the FCC has provided operators periods of time in excess of three years when there has been a material change in regulatory policy in order to minimize disruption and facilitate a stable investment environment for operators.<sup>61</sup>

The FCC should also make clear that indemnification obligations expire upon retirement of the satellite. As a practical matter, operators cannot indefinitely pay insurance costs

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<https://bit.ly/3cLHPZV> (capping insurance requirement at € 60 million or ~\$71 million USD); Decree of 19 January 2015 Expanding the Scope of the Space Activities Act to Include the Control of Unguided Satellites (Unguided Satellites Decree), Netherlands Minister of Economic Affairs, at 6 (Jan. 19, 2015), <https://bit.ly/2GDap43> (explaining that an annual premium for an insured amount of \$20 million is not overly burdensome).

<sup>61</sup> See, e.g., *C-band R&O*, ¶¶ 159-60 (setting a 5-year deadline for fixed satellite service incumbents to clear their C-band operations, which the FCC argued struck “a fair and appropriate balance” to ensure space station operators, among others, have the necessary time and flexibility to launch additional satellites to complete the transition in a careful, fair, and cost-effective manner); *Amendment to the Commission’s Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, First Report and Order and Further Notice of Proposed Rule Making, 11 FCC Rcd. 8825, ¶ 67 (1996) (establishing a ten-year sunset period in the transition of the 2 GHz band from existing fixed microwave services to broadband Personal Communications Services to allow incumbent fixed service licensees to amortize the full costs of their purchased equipment).

associated with non-productive assets, and it is unlikely that there would be any commercial insurer willing to provide indemnification insurance in perpetuity.

The Satellite Client also supports the FCC’s proposal to exempt from any indemnification requirement any operator that has entered into contractual arrangements with a U.S. agency or entity that has agreed to indemnify the operator for its space operations.<sup>62</sup> A contrary result would undermine the intentions of the U.S. government in such cases.<sup>63</sup>

#### **IV. THE FCC SHOULD CLARIFY THE QUANTITATIVE METRIC TO ASSESS COMPLIANCE WITH THE REQUIREMENT TO MINIMIZE THE PROBABILITY OF ACCIDENTAL EXPLOSION.**

In the *FNPRM*, the FCC asks whether it should adopt the metric specified in the U.S. Government ODMSP recently updated in 2019, which provides that the “integrated probability of debris-generating explosions for all credible failure modes of each spacecraft . . . is less than 0.001 (1 in 1000) during deployment and mission operations.”<sup>64</sup> The Satellite Client supports the proposal provided the FCC clarifies the methodology to assess this measure.<sup>65</sup> Providing clarification regarding the methodology would provide greater regulatory certainty. The FCC should also permit parties to deviate from use of such methods in situations where operators can demonstrate a reasonable basis for relying on an alternative methodology. Providing operators such flexibility in demonstrating compliance would help minimize regulatory burdens while still ensuring compliance with regulatory requirements.

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<sup>62</sup> See *FNPRM*, ¶ 191.

<sup>63</sup> Applicants should be permitted to qualify for this exemption upon the provision of a signed letter from the relevant U.S. agency or entity or some other comparable demonstration.

<sup>64</sup> *FNPRM*, ¶ 154.

<sup>65</sup> The Satellite Client understands that this metric can be calculated using the NASA DAS software. See NASA-STD-8719.14B at Section 4.4.4.1.

**V. CONCLUSION**

For all the reasons stated above, Hogan Lovells on behalf of the Satellite Client requests that the FCC take actions consistent with these comments.

Respectfully submitted,

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